TO WHAT EXTENT ARCHITECTS AND DESIGNERS IN EGYPT CONSIDER HUMAN WELL-BEING PRINCIPLES

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ABSTRACT

Built environments are the physical surroundings that are man-made to satisfy their needs and solve their problems. Architects, urban designers, interior designers, environment designers, and design professors play a vital role in the built environments in Egypt, impacting individuals' mental and physical health. A new design paradigm emerged a few years ago due to years of collaborations between architects, designers, scientists, and professionals. They name it the Human Well-being Oriented Built Environment design paradigm. Some designers and scientists named it beyond green architecture. This unique design paradigm has advanced and new design principles and considerations that are principally based on the existing proven sciences, scientific theories, and design theories such as; Biophilia theory, Attention restoration theory, Stress restoration theory, Biophilic design concept, Neuroscience for architecture, and Well building standards/rating systems. This paper is part of ongoing research; its aim is to determine the extent to which designers who practice in Egypt's built environment design market consider the human well-being design principles. This research aims at exploring designers' awareness of this design paradigm and its principles, and to what extent they apply them in the built environments in Egypt. Authors created open-ended structured in-person interviews based on the Well-being design principles. We applied inductive qualitative and descriptive coding analysis techniques to compare and correlate their responses to this design paradigm to accomplish this paper's main aim. Results showed that interviewees are not following most of the Humans Well-being Oriented Built Environments Design Principles and considerations. Furthermore, they need to be aware of this design paradigm's existing proven sciences. However, they apply some, but they rely on their design experiences and emotions not on the existing sciences of the Human Well-being. In addition, designers in Egypt do not include other scientists into design process.

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Interviewees believe that Egypt's built environments creators including designers are not focusing on Human Health and Well-being yet. Built Environments in Egypt are business oriented.
Keywords: Nature; Humans' health and well-being; Well-being Design Principles; Egypt's Built Environment; Architecture design.

1.INTRODUCTION

The paradigm for architectural and built environment design has shifts over the years. A distinct design paradigm led every period. Contemporary built environment design concepts arose from an environmental behavior design approach. Additionally, this method has shifted, with designers focusing more on environmental technology design. As a result, Green Architecture and sustainability transformed as the dominant design paradigm, emphasizing the value of reducing the impact of humans and built environments on ecology and natural resources while generating renewable energy. A few years ago, architects, urban planners, and scientists acknowledged and demonstrated that the physical or built environment profoundly impacts human psychological and physical health. Therefore, they started giving a greater emphasis than in previous decades on human mental and physical wellness and their interactions with their physical surroundings. With the world's tremendous population growth and significant urbanization, cities currently house more than half of the world's population. As a result, the unplanned expansion in urban development disrupts the profound tie between man and his native nature. From a practical aspect, architects defined the man-nature relationship, resulting in a significant shift in technological vision from man to machine. Furthermore, they only used building performance levels to measure user comfort in the built environment. Human physiological, psychological, behavioral, affective, and cognitive characteristics are all affected

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when separated from their native environment (Nota *et al*., 2017). Several global entities, such as the US System of energy efficiency rating and ecological footprint Leadership in Energy and Environmental Design (LEED), created widely recognized rating system accreditation measuring building performance levels of energy consumption, water consumption, materials used, and their impact on the natural world. On the other hand, methods for human mental and physical health and well-being play a key role in the emergence of built-environment values (Betro & Barbiero, 2017). The previous edition of green building principles originated as a building-centric checklist to cover the fundamental strategies in sustainable design, but it came to a lack of fulfilling the "healthy" criteria for building users (Yeang & Spector, 2011). A few years ago, no established global rating systems or official certifications measured our built environment and its impact on an individual's mental and physical state. Although our built environments' primary goal is to be individual pleasure and well-being, rating systems have only been energy-oriented because people spend more than 90% of their time inside these built environments. A few years ago, professionals, architects, and other scientists worked hard to develop new architectural ideas or concepts that primarily evaluate and focus on human health-oriented built environments. As illustrated in Fig. 1, researchers outline a historical timeline of various efforts done toward the human well-being-oriented built environment design philosophy (Hussein *et al*., 2023). The recently created built environment design paradigm aims to enhance human well-being by creating built environments that benefit their well-being. Attention restoration theory and stress restoration theory both emphasize the role of a positive built environment, or nature play, in restoring their users' direct attention or putting them in a fascinating mental mood to allow them to function positively again (Ulrich R., 1981) (Kaplan & Kaplan, 1989). Biophilia theory,

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developed in the 1970s, and biophilic design, developed in the 1990s, reflect restorative built environments based on the design philosophy of re-establishing the relationship between nature and human beings (Browning *et al.,* 2014). Furthermore, in 2003, designers teamed with neuroscientists and scientists to gain insight into the human brain and the incredibly complex processes that occur within it while experiencing and interacting with made environments. In New York, a new school of architecture, the School of Neuroscience for Architecture, has arisen. Lastly, in 2013, a group of architects and scientists developed a well-building standards rating system based on the human body's twelve body systems. Several studies have found that physical surroundings influence the human brain's psychological, physiological, and physical circumstances. Researchers in a previous study combined six different design scientific theories, design theories, indexes, and design standards to conduct a thorough and deep comparative analytical study of their primary approaches, objectives, and methodologies. They developed a list of human well-being design principles and considerations (**WBDP**) based on Biophilia theory, Attention restoration theory, Stress restoration theory, Biophilic design concept, Neuroscience for architecture, and Well building standards. WBDP enables architects and designers to apply these positive built environments principles as applied sciences. In this research paper, researchers aim to explore to what extent Architects, Urban Designers, Landscape designers, Interior Designers, and Design Professors consider the human well-being design principles (WBDP) in their design process and design decisions.

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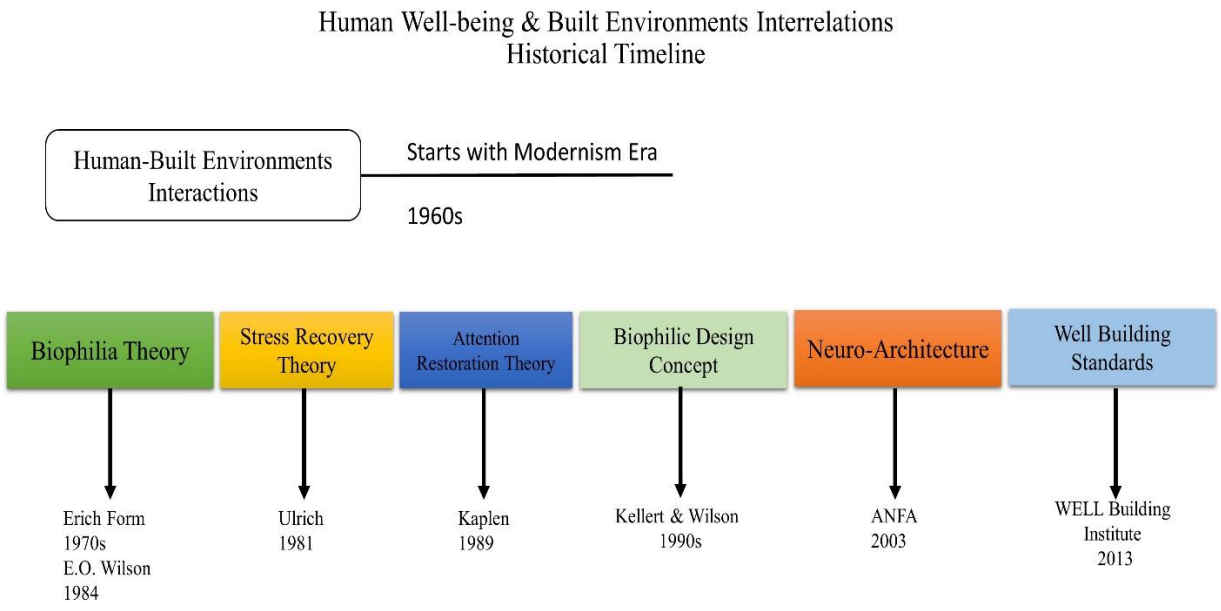

Fig. 1. The time line shows all the actions taken towards creating the new design paradigm After (Hussein *et al.* , 2023).

1.1 Built Environment Impact on Individuals' Psychological / Physical Conditions Relationship

The built environment is unquestionably ubiquitous, and its impacts are more far-reaching than most people realize, even though they live and interact with it every instant of their lives on the Planet. According to the United States Environment Protection Agency, the built environment interacts with every element of human life, including the buildings in which humans live, work, learn, and heal; man-made systems that provide humans with water and power; and roads, bridges, and transportation networks. In his book Bartuska described the built

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environment as four interrelated traits. The first character is massive, everywhere, and humans manufacture or create everything to satisfy their desires. The second characteristic distinguishing feature is that all human minds produce to satisfy their needs, desires, and comfort. Third, people were created with the intention to safeguard themselves from their surroundings while simultaneously achieving comfort and well-being. The final characteristic is that context determines and affects all aspects of the physical world, and every component impacts both the built and natural environments and human-environment relationships. These effects begin at the micro-level and develop at the macro and global levels. Figure 2 depicts these four built environment characteristics see Fig. 2 (Bartuska, 2011).

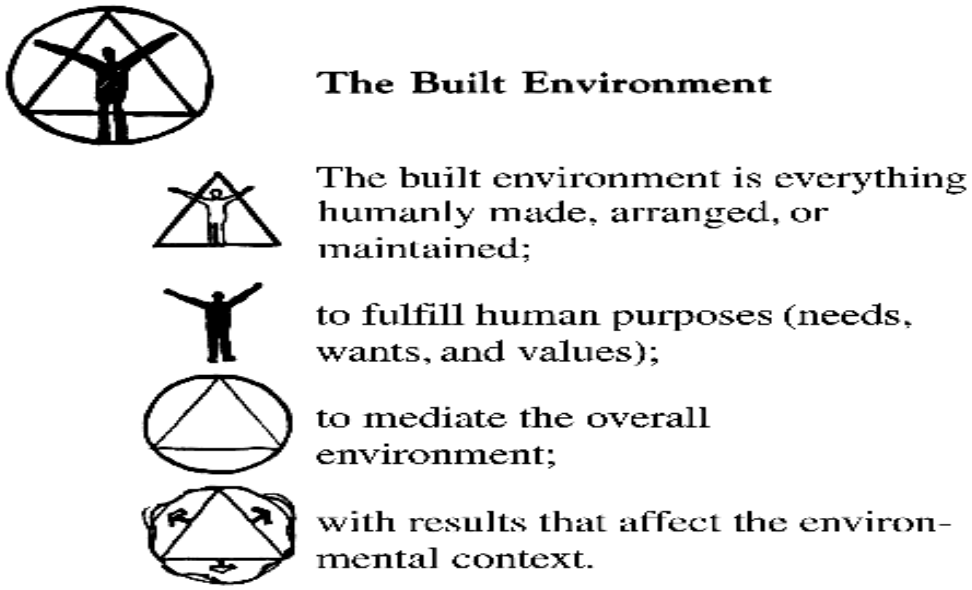

Fig. 2. The Built Environment's (B.E.) four characteristics (Bartuska, 2011).

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Man's mental health, or in other words, his well-being, plays critical role in his performance socially and physically. Thus, individuals must be in their normal mental condition or accomplish their well-being to perform accurately and adequately. The World Health Organization (WHO) defined human health as the comprehensive condition of physical, mental, and social well-being rather than the absence of disease or disability (WHO, 2023). There is no scientific definition for the Human-being's well-being. However, it can be defined as a pleasant feeling mixed with a lack of negative emotions, life satisfaction, and positive functioning. Designed or not designed, built environments (B.E.) impact their users' mental and physical conditions.

Negatively built environments are daily stressors for their users. Stress is the key word of most human chronic diseases nowadays. Previous studies prove that Stress causes mental and bodily diseases that could lead to death, as Fig.3 shows below. There is also a pressing desire to understand that every person has their individual feelings and lived experiences, leading to a distinct experience in a specific setting or place (Ulrich *et al*., 1991). Researchers and scientists examine people's relationships with various B.E. and natural surroundings to comprehend their actions and psychological results (Kopec, 2010). Because B.E. is such an essential and critical component of human life, it must be carefully developed (De Botton, 2008).

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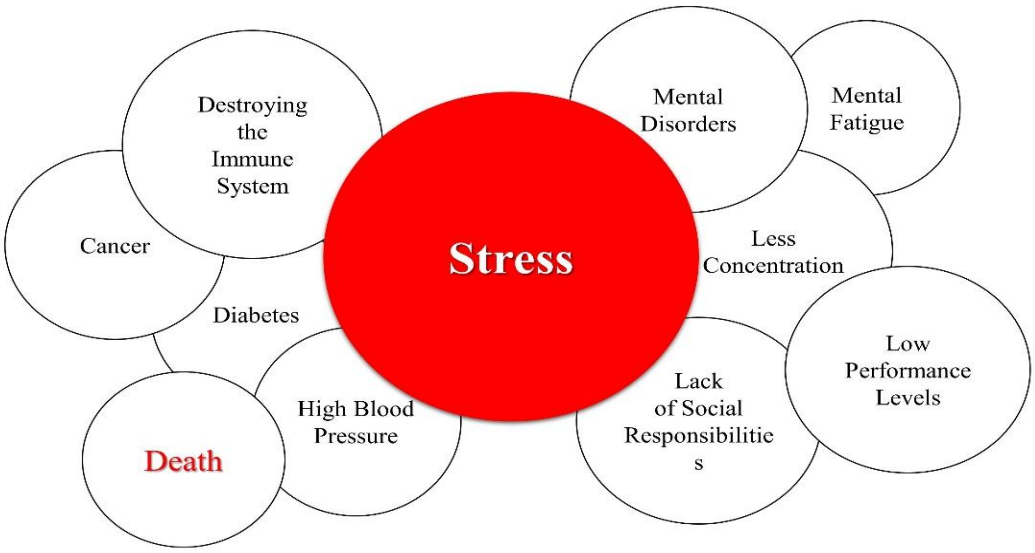

Fig. 3. Stress-related mental and physical diseases nowadays.

1.2 Existing Proven Knowledge

This paper is part of an ongoing inductive qualitative research. Researchers in phase two the deductive part revisited selected six different existing scientific theories, indexes, design concepts, and rating systems. These are, Biophilia theory, Attention restoration theory (ART), Stress recovery theory (SRT), Biophilic design (The 14 patterns of Biophilic design), Neuroscience for Architecture (Neuro-architecture), and the WELL Building Standards Rating Systems as shown in Fig. 4.

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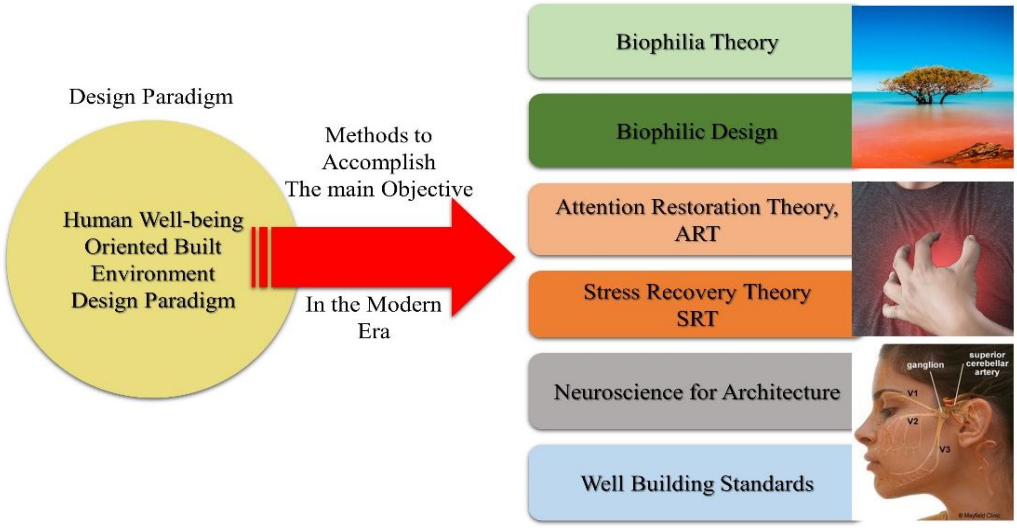

Fig. 4. The Existing proven sciences and knowledge, which researchers apply the deductive analytical technique on them to create the Human's well-being design principles and Considerations.

Humans have an inner belief that force them to be connected with Nature because Human is a part of Nature matches Biophilia. Biophilia is a Greek word; "The passionate love of life and of all that is alive." German-born American psychoanalyst Erich Fromm created the term love nature or loved living things in the anatomy of human destructiveness because he was trying to emphasize the significant interrelationship between humans and their native Nature or living things that surround them. Edward O. Wilson, an American biologist, attempted to create a new concept that focuses on reestablishing the connection between Man and Nature. Wilson, Kellert, Heerwagen, and Mador believe that the physical surroundings can significantly enhance a person's physical and psychological status (Kellert *et al.* 2008). Furthermore, Stress is the major cause of extensive chronic disorders in the modern era. Stress has a bad effect on a person's

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mental health as well as their body's core (immune system). Stress creates mental health problems and heart diseases, both of which might result in sudden death. Ulrich's stress restoration hypothesis claims that natural surroundings enhance stress recovery, whereas urban environments tend to impede the same process (Ulrich, 1981). In addition, Stephen and Rachel Kaplan established attention restoration theory (ART) between 1989 and 1995. At the time, the built environment was distinguished by rapid technological advancement and ever-increasing interior efficiency. Users were concerned about the lack of time they spent engaging with nature because they spent the majority of their time inside built environments. According to the ART, connecting individuals with nature is enjoyable and can help to enhance their focus levels, ability to concentrate, and creativity levels (Roe & McCay, 2021). Moreover, Nature and its impact on Humans' helath led to the biophilic design concept. It was first proposed in 1993 by Stephen Kellert and E.O. Wilson, who edited the biophilia hypothesis. Stephen Kellert and E.O. Wilson developed the biophilic theory, which is based on the interactions between ecology, humans, and design. In 1993, Stephen Kellert and E.O. Wilson stated, "We are beings that have evolved with Nature, we are constrained to be connected to nature at multiple levels of our being," (Kellert &Wilson,1993). Wilson and Kellert pioneered the concept of biophilic design in the practice of ecology and design, which is to re-establish the connection between Humans and Nature again.

In 2003, a new architecture school emerged in The USA. Its aim is to determine how each environmental factor affects certain users' brain processes, influencing an individual measure (Edelstein, 2002). The scientific goal of neuro-architecture is to have established knowledge demonstrating the impact of physical surroundings and designed B.E. on human brain mechanisms, neuroscience system, immune system, and emotions. The Academy of

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Neuroscience for Architecture (ANFA) was founded in 2003 by the American Institute of Architects (AIA) as a global center for multidisciplinary endeavors to construct educated ties between neuroscientific studies and B.E. designers and professionals. In 2013, WELL Building Standards for designing and constructing a global community developed. Over seven years of study and cooperation among top medical experts, architects, designers, and building industry experts, the WELL V.1 was created. The team's findings become feasible approaches for building design and operation in collaboration with famous architects, engineers, lighting specialists, sustainability consultants, and designers. They created these rating systems based on ten concepts; air, water, mind, community, movement, innovation, light, sound, materials, nourishment, thermal comfort, and their relationship to the 11 human body systems (Institute, 2023).

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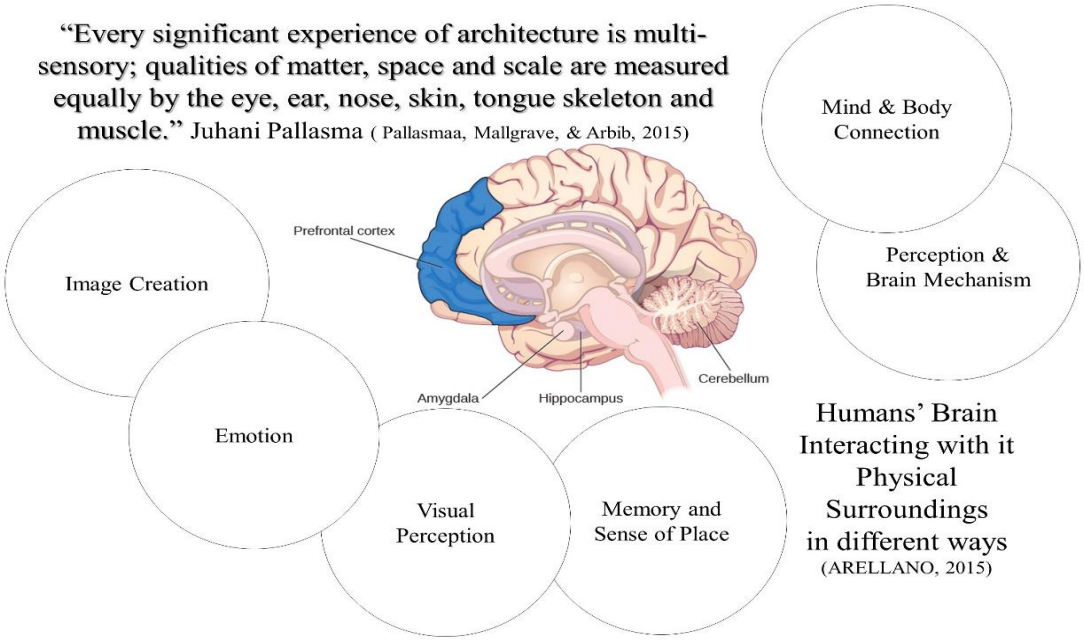

Fig. 5. Humans' brains' internal processes inside the built environments

2. The Human Well-being Design Principles & Considerations: WBDP

Researchers applied the deductive qualitative and thematic analysis techniques to create the Well-being Design Principles (**WBDP**) in phase two of the ongoing inductive qualitative dissertation. Their comparative and correlate analysis enables them to integrate the selected six proven knowledge objectives, methods, and principles to create the Well Being Design Principles and Considerations (**WBDP**). Researchers created the Open-ended structured in-person interview questionnaire based on the **WBDP** to accomplish the main aim of this research and this paper's aim: to what extent do architects and other designers in Egypt consider the

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human well-being design principles in their designs and practices? Moreover, they aim to provide in-depth deductive analytical studies for designers to give them a better understanding of the **WBDP** and the existing proven knowledge behind it. The following figures show a part of the deductive analytical study to create the **WBDP** Fig. 6 to Fig. 9.

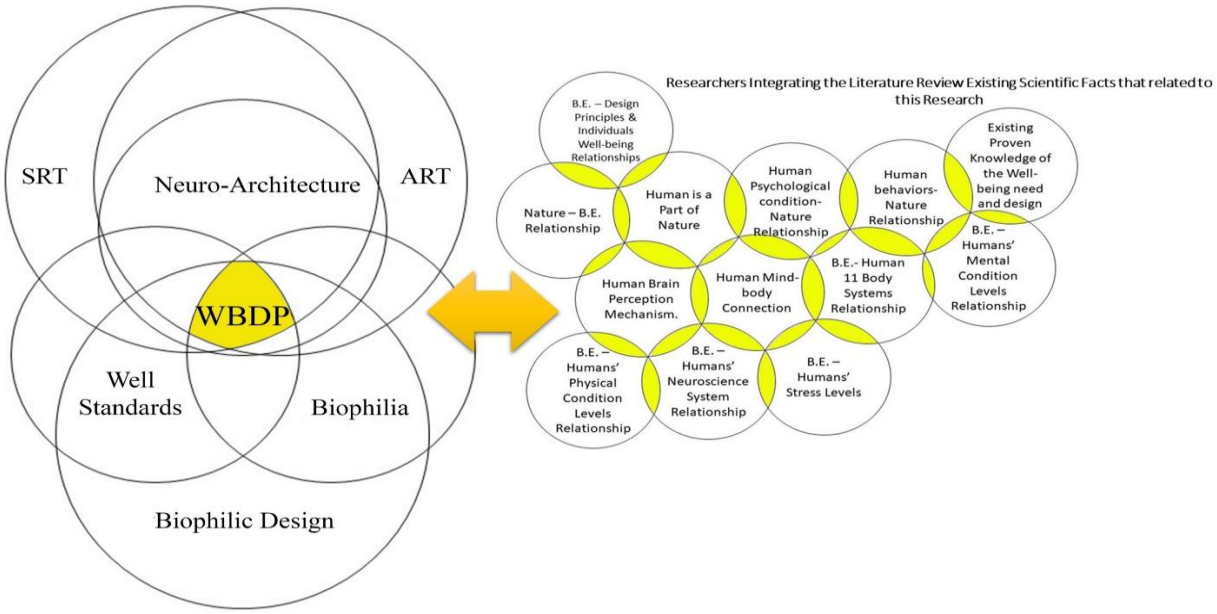

Fig. 6. The Existing Proven Knowledge and Sciences deductive analytical part in order to create the WBDP.

The selected six existing proven knowledge and the other research and findings in this paper focus on the interrelationship between Humans' Well-being, Built Environment Design, and Nature.

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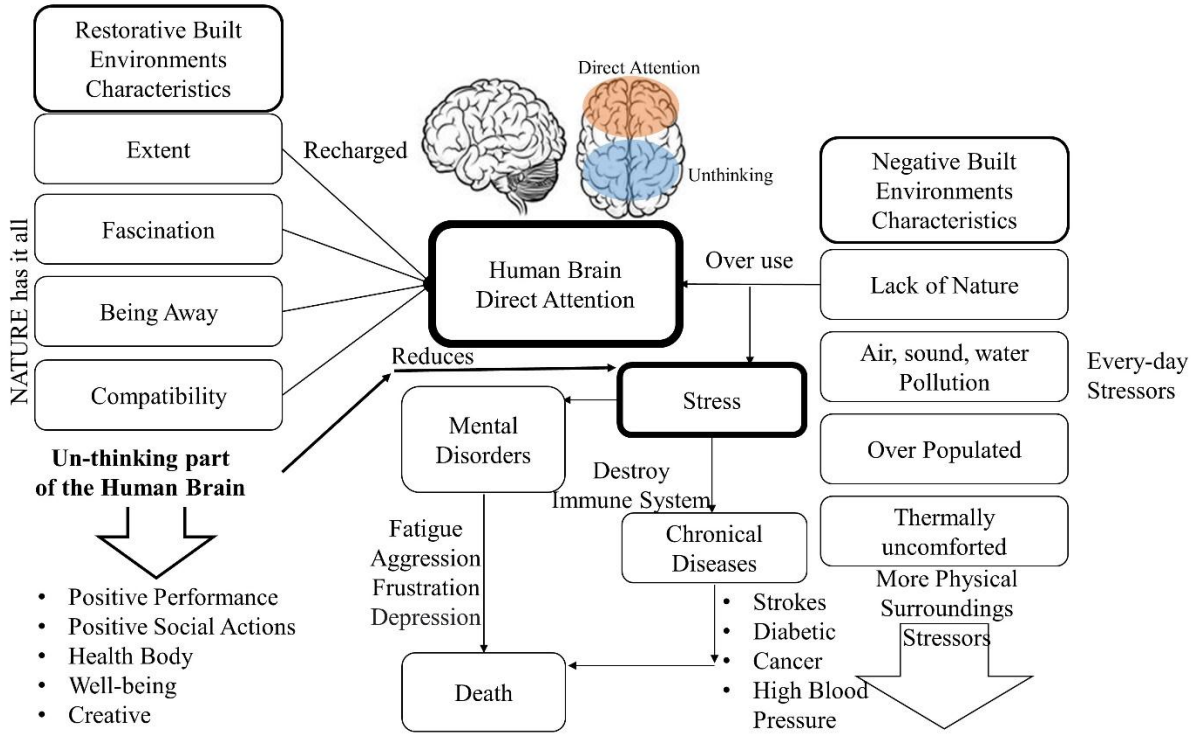

Fig. 7. Human brain perception, interaction, and direct attention towards the positive and negative B.E. and its impact on their psychological and physical conditions and chronic diseases (Hussein *et al.*, 2023).

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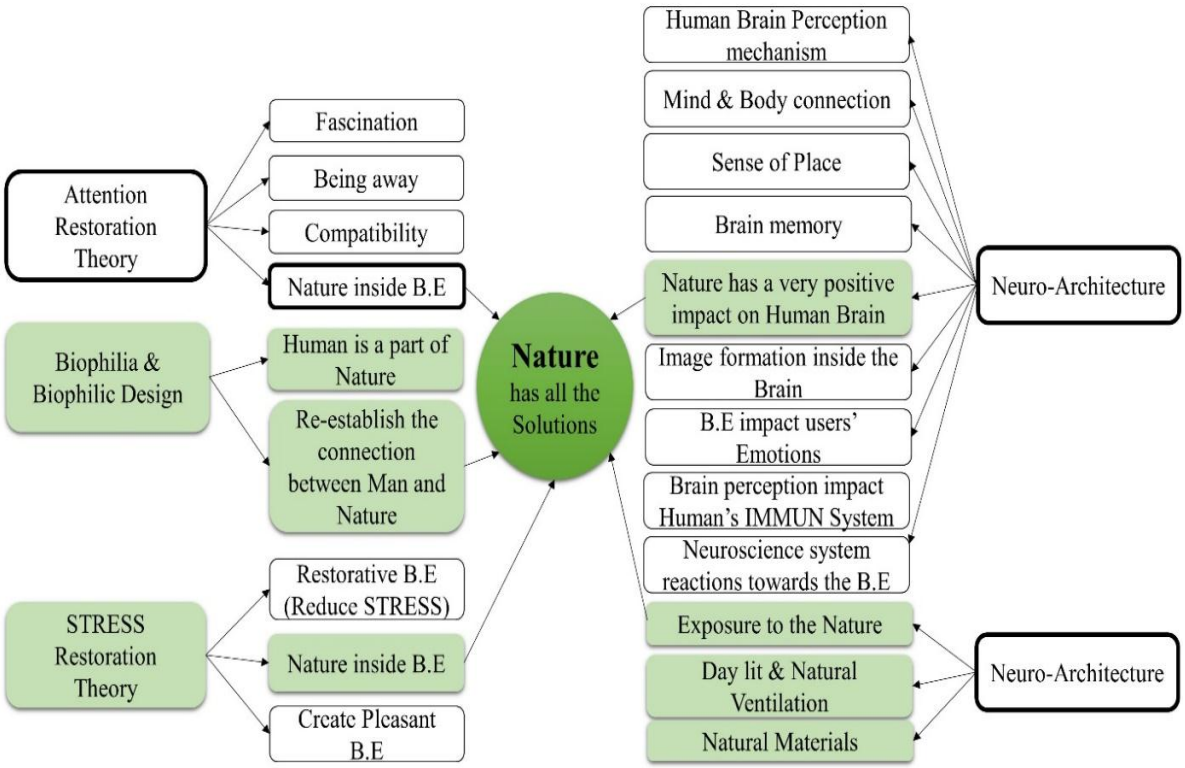

Fig. 8. All the selected Proven Knowledge agrees that Nature and connecting Individuals with Nature again has all the solutions.

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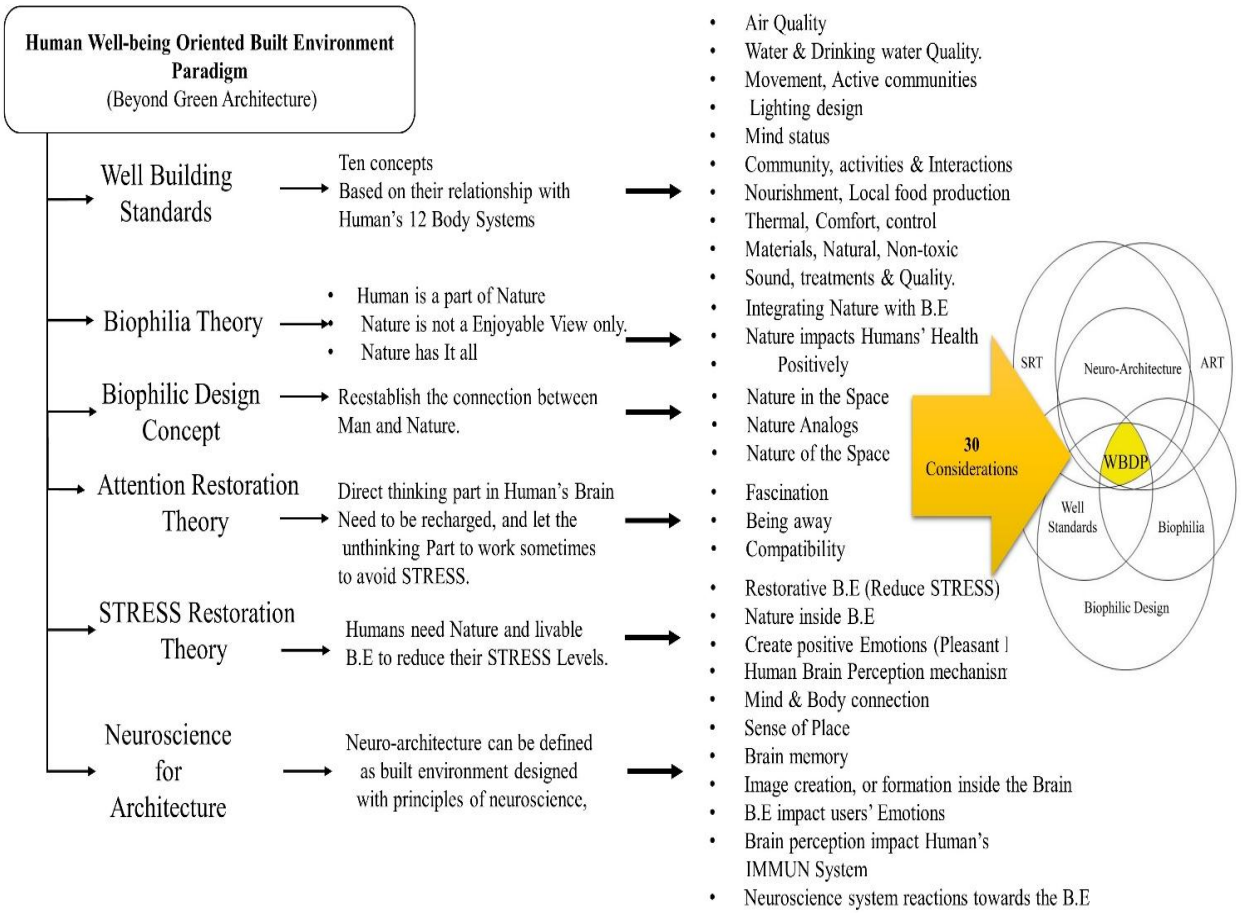

Fig. 9. The researchers created 30 design considerations and principles for the **WBDP.**

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3. METHODOLOGY

This paper is part of the third phase of ongoing research. The methodology in this paper is based on two parts. Part one is the researchers' creation of an open-ended structured interview. The structured in-person recorded interview contains 33 open-ended questions. These structured interviews were created based on the human well-being design principles (WBDP), and the interview sequence was based on the different main themes, as Fig. 10 shows below. Part two of this phase is the inductive analytical technique in which researchers apply the thematic analytical method and axial coding approach to compare and correlate architects, urban designers, landscape designers, interior designers, environmental designers, and design professors' responses with the human well-being design principles (WBDP) which the researcher has created in a previous part of the same ongoing qualitative research. Researchers in this paper aim to compare and correlate architects' and designers' responses, their inner design thoughts, and principles to the created WBDP to accomplish the main aim of this research and explore to what extent architects and designers consider human well-being design principles and considerations in their design decisions and processes. In contrast, they designed the physical surroundings in Egypt. Moreover, designers aim to explore the current condition of Egypt's B.E. from the interviewees' point of view and what it is like by analyzing some of the newly emerged themes of the interviewees' responses.

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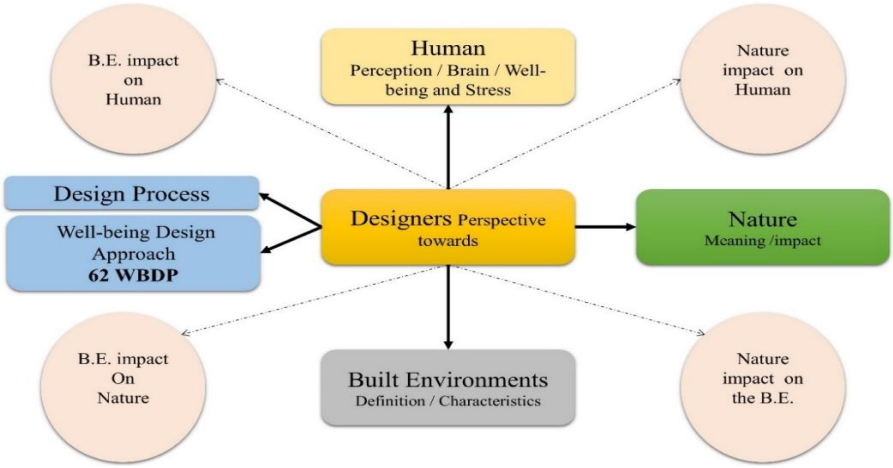

Fig. 10. The general themes and sub-themes, on which researchers based their open-ended in-person structured interviews.

Fig. 11. Shows the sequence of the methodology researchers follow and the location of phase three, the Inductive analytical phase, which is the main phase of this research paper.

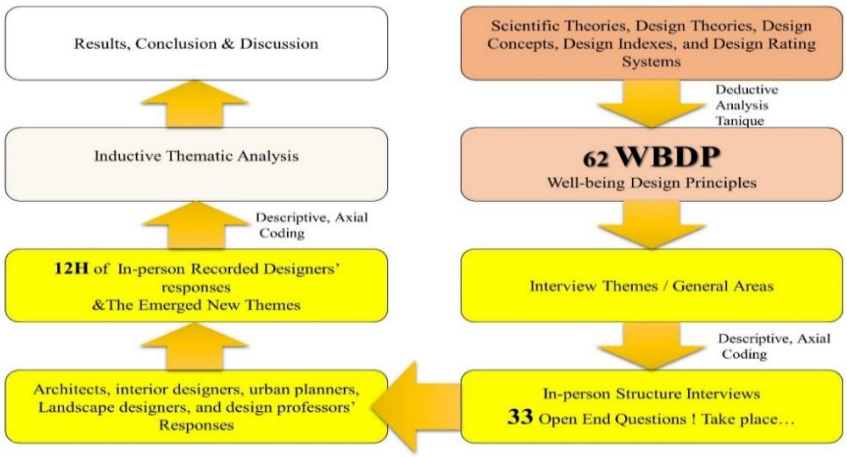

Fig. 11. Step by step to accomplish the methodology of the research.

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4. Inductive Analysis of the Architects and Designer Responses' Themes

Researchers have specific selection criteria for Architects, Urban designers, landscape designers, Interior designers, Environmental designers, and Design Professors who practice in Egypt. They selected the interviewees based on their impact on Egypt's design and built markets nowadays. Selecting criteria as follows;

Design firm with more than 15 years of practice in the Egyptian design market.

- Their design projects from 200 to 1500 projects.
- projects, most of them are built.
- Well-known in the Egyptian Design market.
- High level of Education.
- According to the design professors, teaching design for more than 20 years in top architecture design schools in Egypt.
- They work on various project types.
- Most of them have a noticeable identity in their designs.

Open-ended questions were based on the well-being-oriented built environments design paradigm and the WBDP created by the researchers in phase two of ongoing research. The interviews were very friendly and casual way. The interviews took place inside selected designers' offices inside their design firms. Researchers made it that way to make designers relax and express their inner thoughts freely and to the max. The average time of these well-structured in-person recorded interviews was between an hour and a half to two hours.

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Researchers' inductive qualitative analytical technique that they applied to interviewees' responses has emerged 16 themes that elaborate the designers' level of awareness towards the new design paradigm (The Human Well-being Oriented Built Environments Design Paradigm. In addition, researchers explored the interviewed designers' inner design beliefs and design thoughts. The following are the themes that emerged from the interviewees' responses. Some of them are related directly to the WBDP, some are related indirectly, and some are related to the current situation of the B.E. design market in Egypt, either about the designers in Egypt or the Built Environment itself and its current condition from their point of view. The following figures from Fig. 12 to Fig. 14 are some of the mental maps and diagrams which researchers have created to help them with two main objectives of the inductive analysis process. First aim is to dig deeply into designers' design beliefs and principles. Second aim is to be able to follow a specific sequence in the open end questions, which helps them to explore their level of awareness towards the existing proven sciences, and to what extent their design principles match the **WBDP**.

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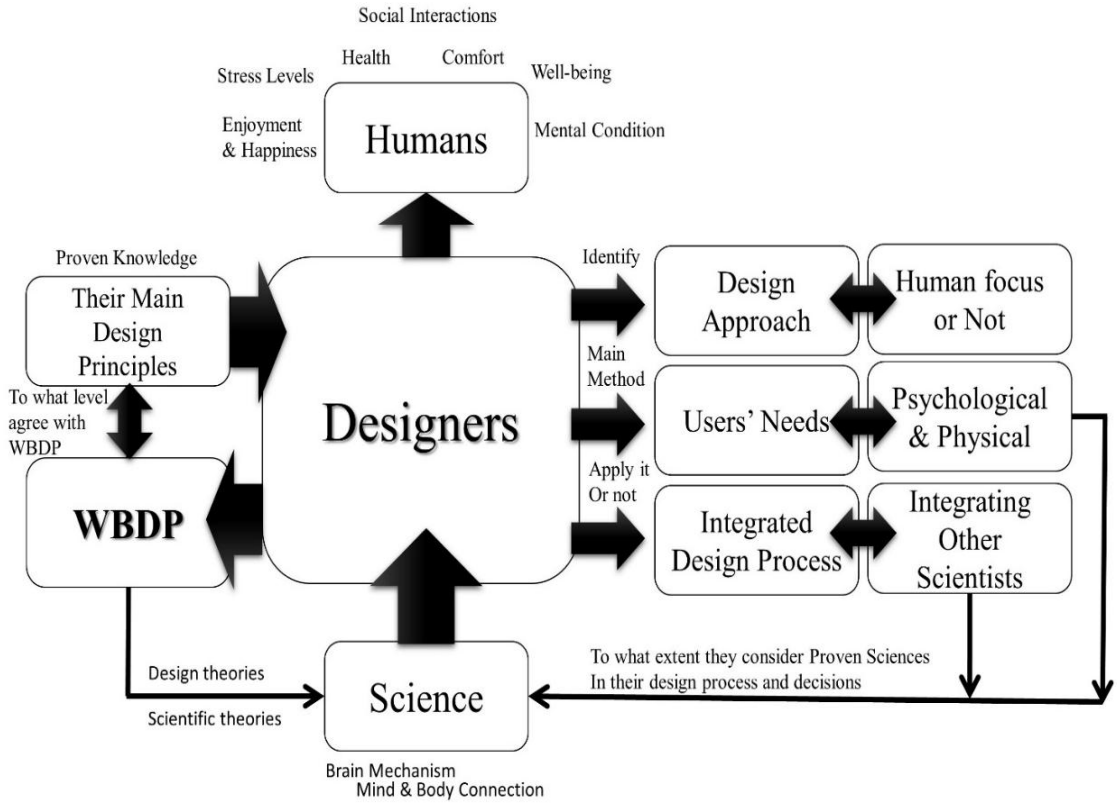

Fig. 12. The mental Map the researchers created to compare and correlate the Interviewees' Responses to the WBDP based on the Design process /Sciences and their impact on the B.E. Users' well-being.

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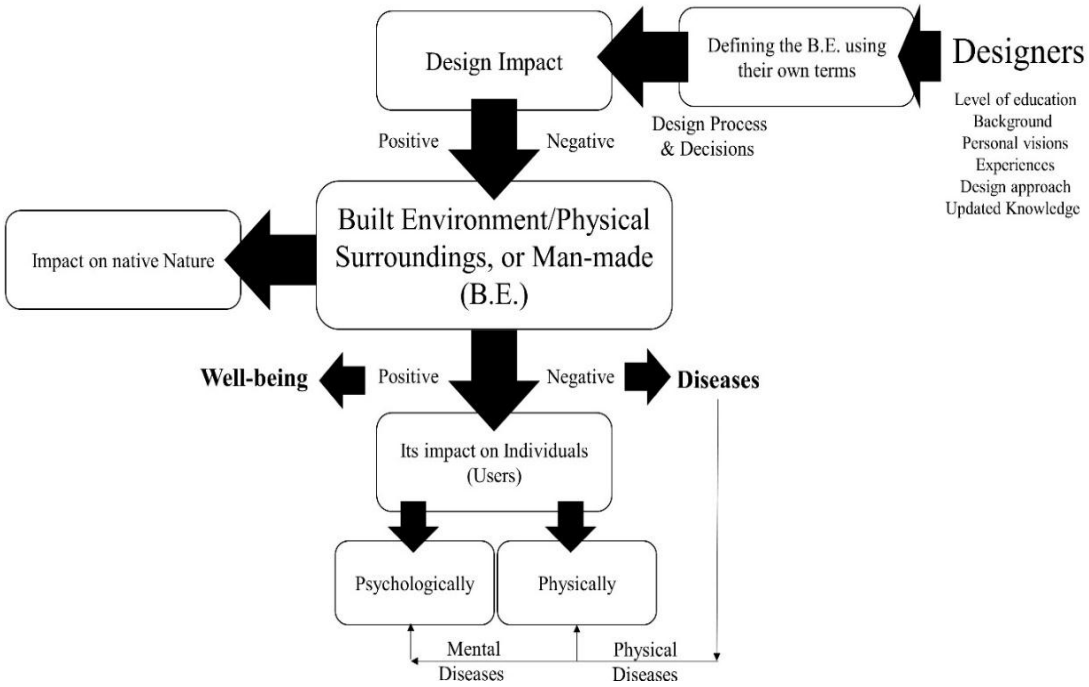

Fig. 13. The mental Map the researchers have created to compare and correlate the Interviewees' Responses to the WBDP based on the Built Environments and their impact on their Users' well-being, starting with the impact of designers' background and the way they realize and define the B.E. itself.

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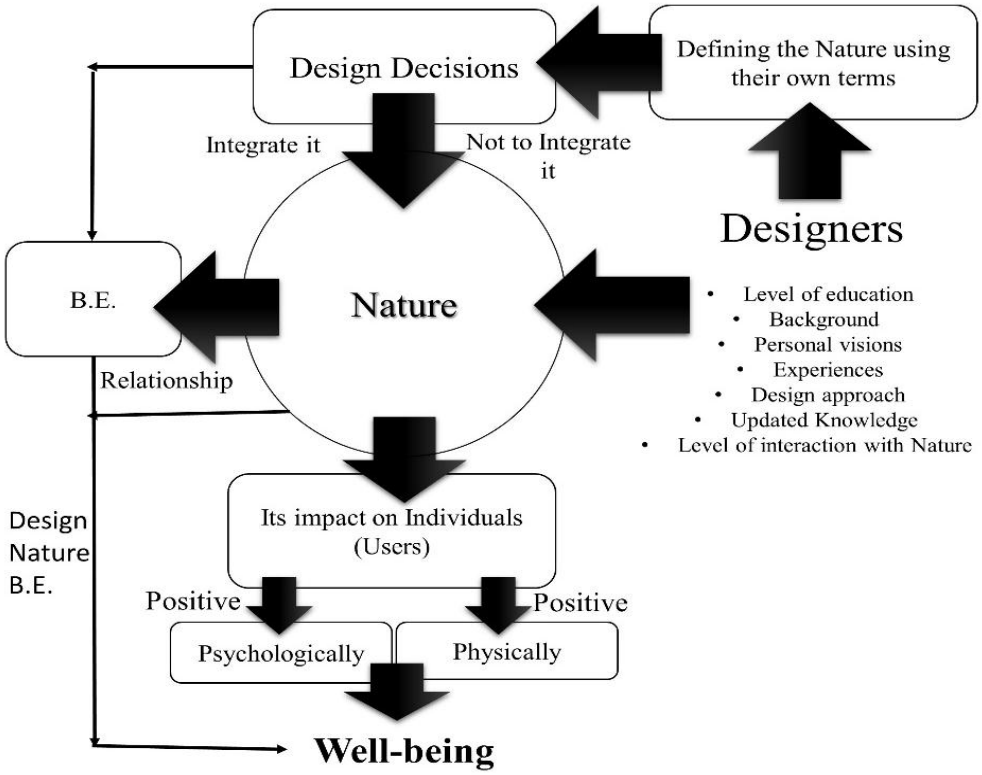

Fig. 14. The mental Map the researchers have created to compare and correlate the Interviewees' Responses to the **WBDP** based on Nature and its impact on individuals' well-being, starting with the impact of designers' background and the way they realize and define Nature itself, and its positive impact on the Psychological and physical conditions of Humans.

5. RESULTS

Researchers applied in-depth inductive qualitative analysis on all of the above themes and compared- and correlated them to the **WBDP**. They follow the narrative analytical technique with the selected interviewees for the **12** recorded hours. In addition, they create charts and

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graphs based on their responses to provide visual illustrations. Results illustrate designers' level of awareness towards the Human Well-being Oriented Built Environment design paradigm and its principles. Researchers provided part of the results below Chart 1, and figures 15 to 18 show some of the results. The highlighted interviewees' responses are the ones that consider humans' mental well-being and are related to the **WBDP**. Results show the following;

- **Designers in Egypt** Consider some Basic Well-being design principles (**WBDP**) based on their emotions and life-design experiences.
- They are unaware of most Well-being Designs' Existing Proven Knowledge and sciences or their scientific terms.
- Designers express users' happiness and mental comfort inside the B.E., but they do not mention the sciences and the scientific methodologies to accomplish them in their design principles and decisions.
- Designers in Egypt emphasized that B.E. in Egypt is not considering humans' health or well-being now.
- Their primary design drivers are their feelings, personal experiences, and basic design principles.
- Designers respect Nature and its positive impact on human health, but they did not mention any proven theories or methods to integrate it inside the designed B.E.
- Designers agree that B.E. impacts users' psychological conditions, but they are unaware of humans' brain mechanisms and perception processes.
- They have their in-house design teams but are still away from **integrated design process concept (IDP)**, which involves other scientists in the design process itself to accomplish.

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- They bring up the subject of the physical surroundings, which speak to humans' brains and emotions, although they still need to read or mention the Neuroscience for Architecture.
- Design schools in Egypt do not teach the selected proven knowledge; only some schools mention Biophilic design, but not as a core.

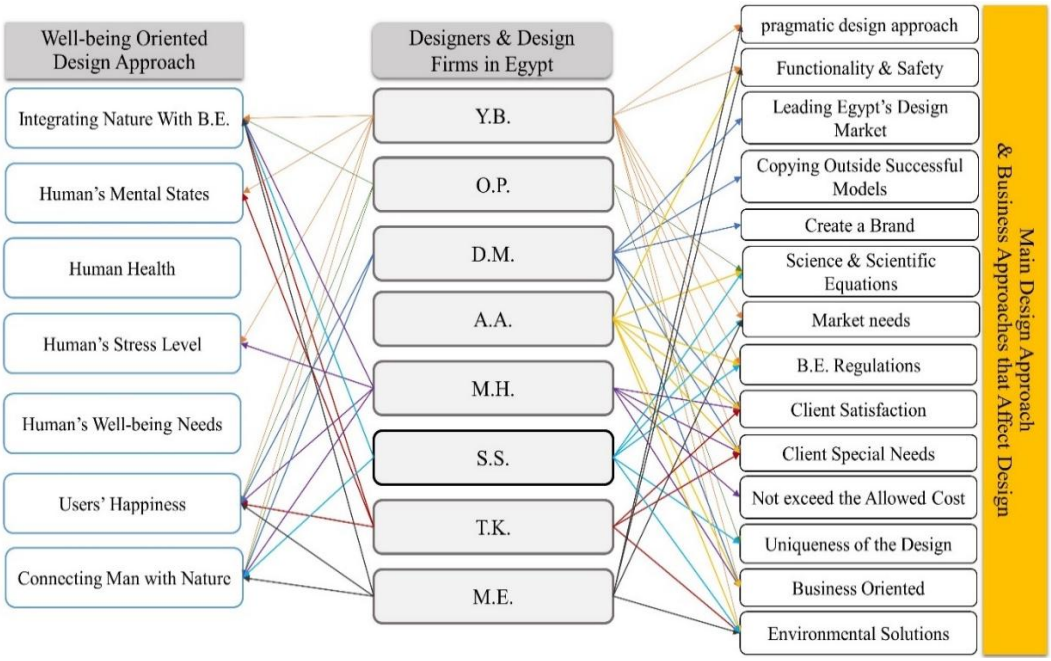

Fig. 15. Architects and designers' main design approach some of them mentioned some of the main approaches of the WBDP as show on the left column.

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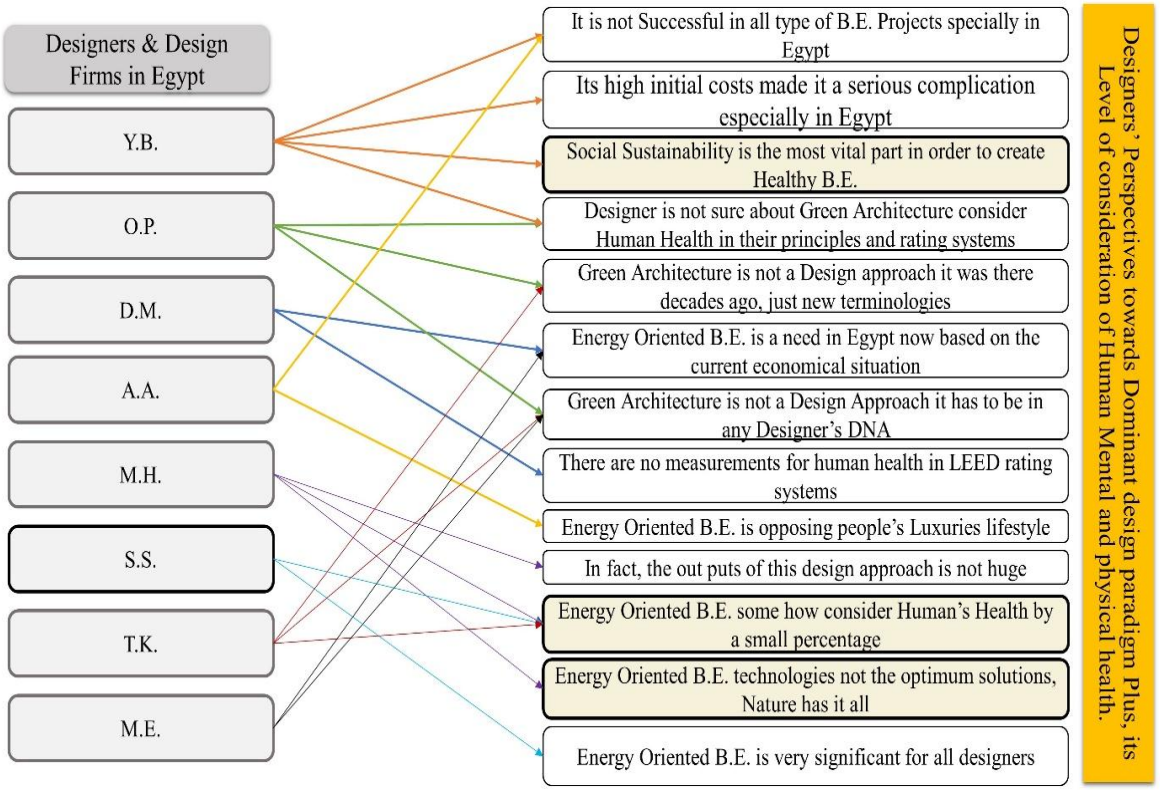

Fig. 16. Part of the results shows designers' perspective towards the dominant design concept, the energy-oriented B.E. nowadays, especially in Egypt, and if it considers Human well-being and health or not.

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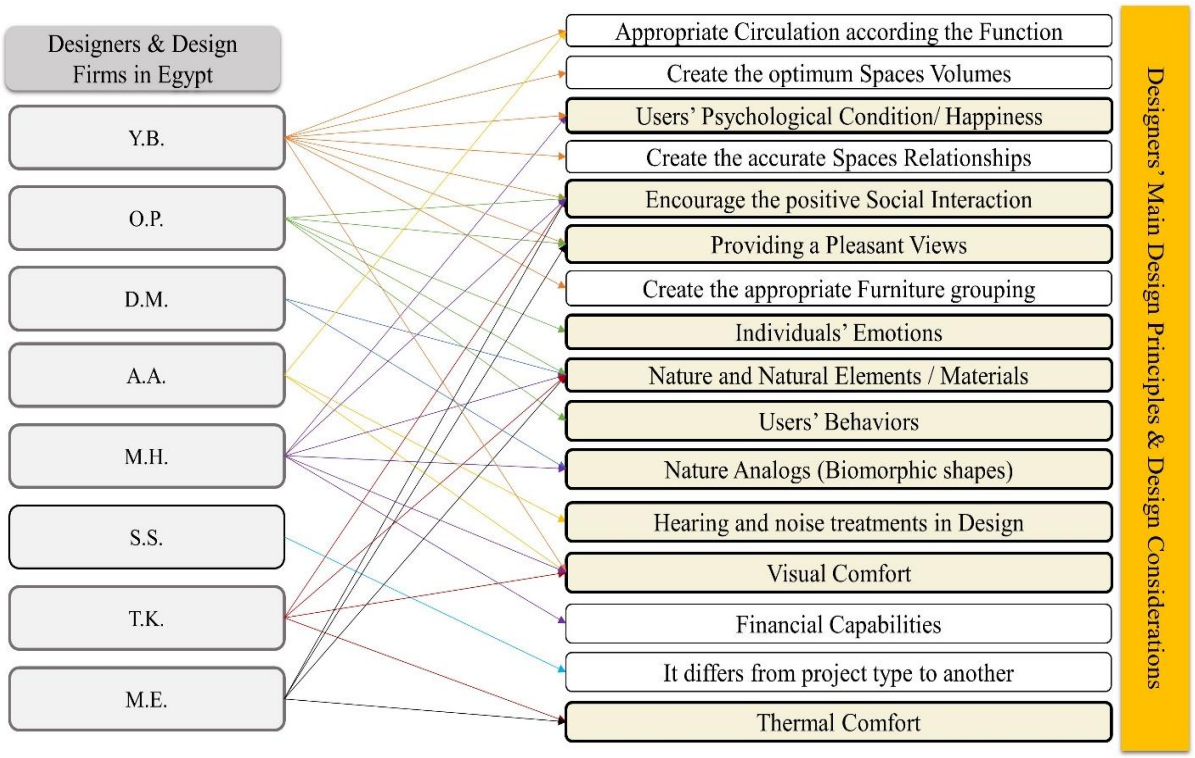

Fig. 17. Part of the results shows Interviewees' Main Design Principles.

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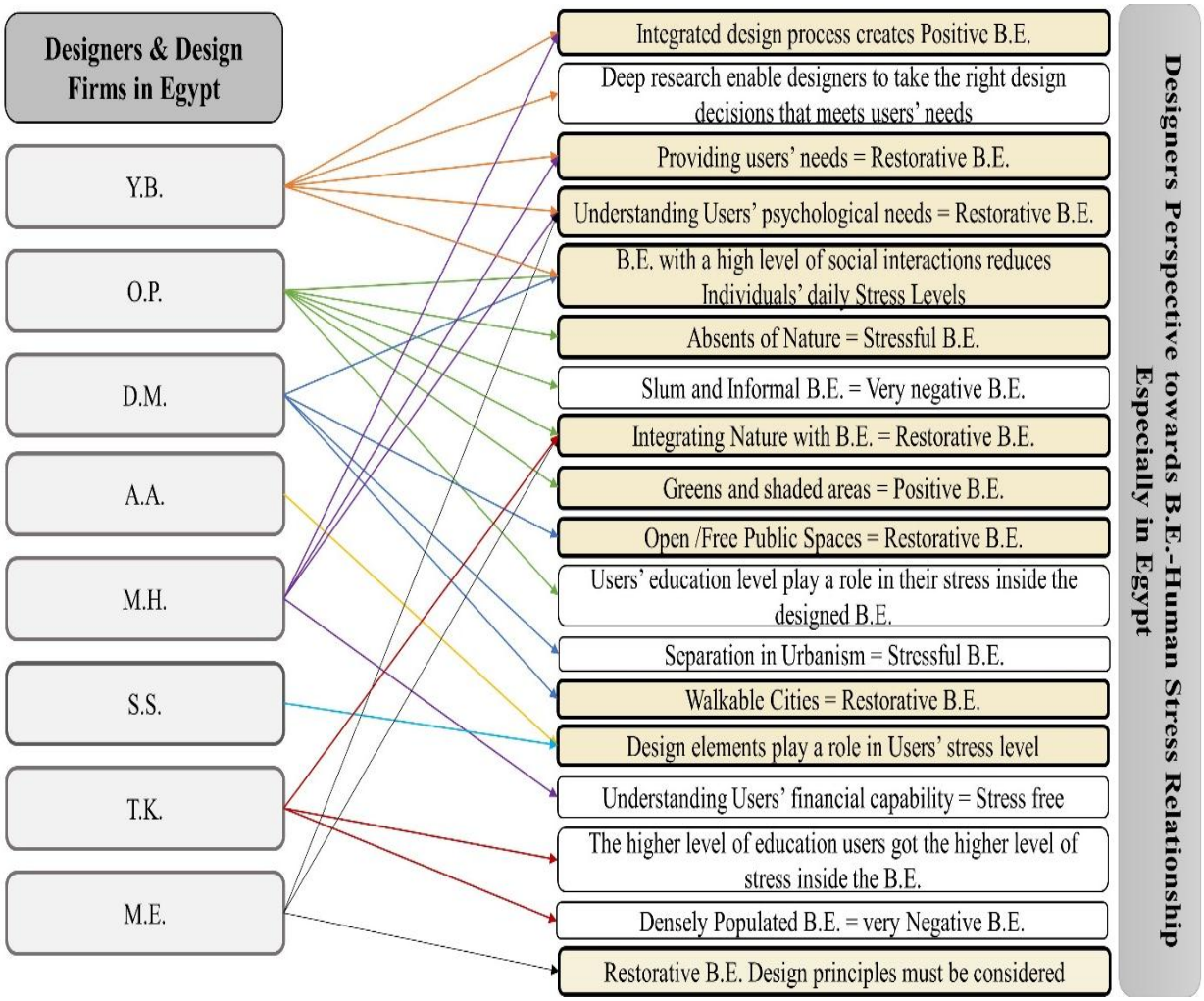

Fig. 18. A part of the Results shows the B.E. and users' Stress Levels from Designers' point of view.

Researchers' interview questions have one question that includes **22** design principles and design considerations based on the **WBDP**, and they discuss with the designers their percentage of considerations towards these selected WBDP. Their responses are mean as below in Chart 1.

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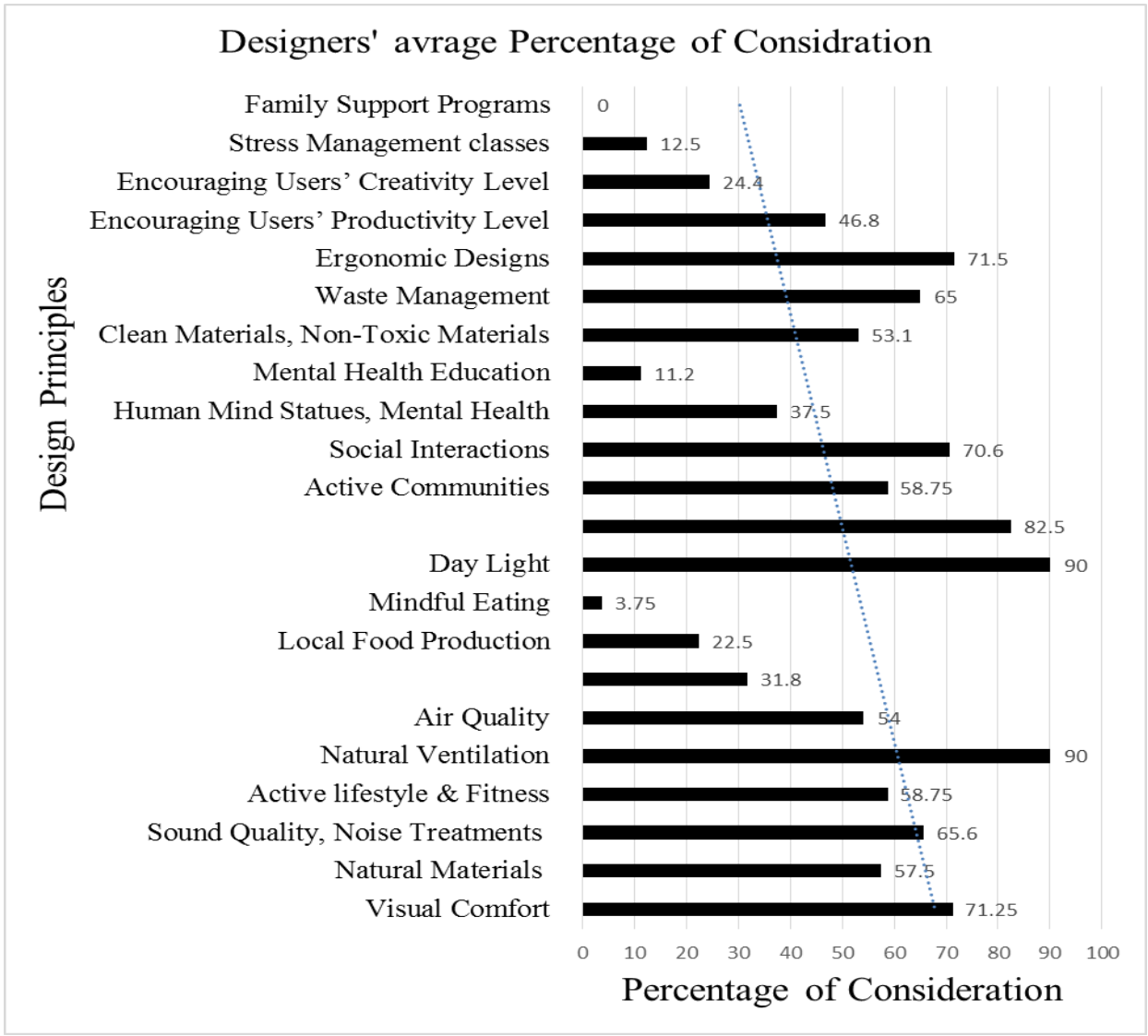

Chart 1. Results of the Interviewees' respons**es** towards how much they consider the selected 22 WBDP into their designs in Egypt's B.E.

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Researchers analyze interviewees' responses towards 22 design principles of the **WBDP**: results show that they consider the basic design principles **(BDP)** the most. Furthermore, they are partially considering the Integrated Design Process **(IDP**). However, they are unaware of the advanced Human Well-being Design Principles, and they do not apply them **(NDP) as shown in Figure 19.**

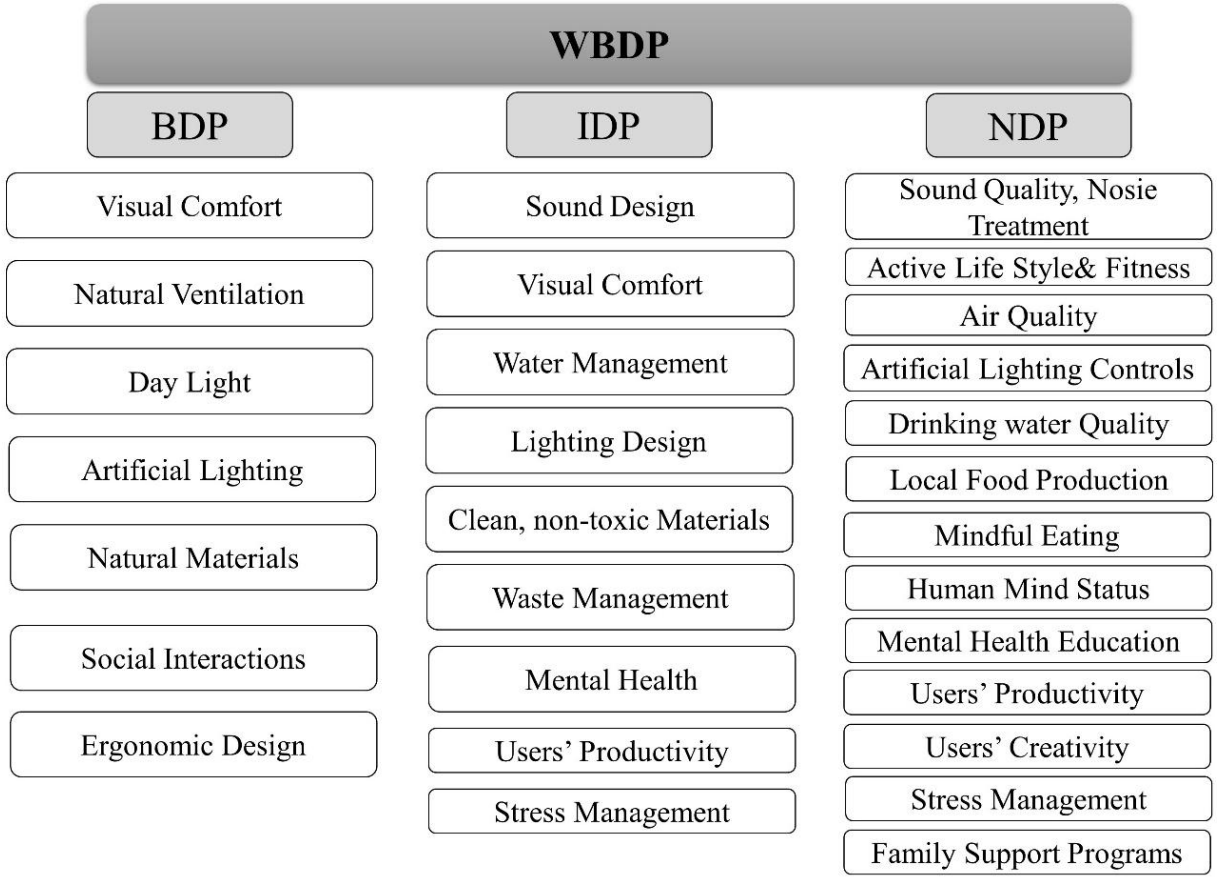

Fig. 19. Different categories of design principles based on WBDP.

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6. Conclusion

Research results showed that architects, urban designers, interior designers, environmental designers, and design professors need to be made aware of the existing proven knowledge and sciences that the Humans Well-being Oriented Built Environments design paradigm and design principles (WBDP) are based on. They must be made aware of the existing scientific terminologies and their alternatives. On the other hand, one architect only read about the Biophilic design concept but did not apply it to any of his designs, and he also heard about the Neuro-science for architecture. However, they mention humans' visual comfort, humans' mental comfort, and individuals' psychological conditions in some parts of their responses. However, they do not speak about the existing proven sciences behind it and the scientific methods to apply these critical design principles to their design process and decisions. Researchers categorized the selected 22 WBDPs they used in the structured in-person interviews into three categories: Basic Design Principles, Integrated Design Principles, and New Design Principles. Results show that designers in Egypt consider basic design principles in any designer's DNA, such as Visual Comfort, Natural Ventilation, Day Light, Artificial Lighting, Natural Materials, Social Interactions, and Ergonomic Design.

Furthermore, they need to consider the integrated design principles, which require them to call other scientists to join the design process to come up with the right design decisions, such as Psychologists and social behavior scientists. They do not consider the new or advanced design principles in the WBDP, such as Sound Quality, Noise Treatment, Active lifestyle and fitness, Air Quality, Artificial Lighting Controls, Drinking water Quality, Local Food Production, Mindful Eating, Human Mind Status, Mental Health Education, Users' Productivity levels,

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Users' Creativity levels, Stress Management, and the Family Support Programs. Most interviewees use their senses and emotions to apply the design decisions and principles; they do not mention the human brain mechanism or mind and body connections. However, they all agree that B.E. is vital in individuals' everyday stress levels. Moreover, they firmly believe that Nature has all the solutions and has a tremendous positive impact on Humans. Finally, they emphasized that B.E. in Egypt nowadays is below average and not even close to the Human Well-being Oriented B.E. yet. In addition, they stated clearly that B.E. in Egypt is business-oriented, not Human well-being/health-oriented.

7. RECOMMENDATIONS

This study recommends that architecture design companies and design firms collaborate with other scientists to create restorative built environments based on new design theories and other existing proven sciences. In addition, decision-makers and developers need to provide more free space for Architects and designers in Egypt to show their skills, and design abilities. Egypt designers need to involve existing human mind-body sciences, because they design for human-being. They should keep following the latest design theories and rating systems globally even if they did not apply them in the Egypt B.E. market nowadays. However, many architects and designers in Egypt are talented with high skills. Architecture design schools have to teach these existing proven sciences in their design core curriculums to correct the built environment market direction in Egypt in the next few years.

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المهندسون المعماريون والمصممون "نحو النظر في مبادئ تصميم رفاهية الإنسان، في مصر

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المستخلص

البيئات المبنية هي البيئة المادية التي صنعها الإنسان لتلبية احتياجاتهم وحل مشاكلهم. يلعب المهندسون المعماريون والمصممون الحضريون والمصممون الداخليون ومصممو البيئة وأساتذة التصميم دورًا حيويًا في البيئات المبنية في مصر ، مما يؤثر على الصحة العقلية والجسدية للأفراد. ظهر نموذج تصميم جديد قبل بضع سنوات بسبب سنوات من التعاون بين المهندسين المعماريين والمصممين والعلماء والمهنيين. يسمونه نموذج تصميم البيئة المبنية الموجهة نحو الصحة العقلية والبدنية والاجتماعية للانسان. يحتوى نموذج التصميم الفريد هذا على مبادئ واعتبارات تصميم متقدمة وجديدة تستند بشكل أساسي إلى العلوم المثبتة الحالية والنظريات العلمية ونظريات التصميم مثل نظرية بيوفيليا ونظرية استعادة الانتباه ونظرية استشفاء الإجهاد ومفهوم التصميم البيوفيلي وعلم الأعصاب للهندسة المعمارية ومعايير /أنظمة البناء لخلق عمران صحي للانسان. وهذه الورقة جزء من بحث لرسالة دكتوراة ؛ ويهدف إلى تحديد مدى مراعاة المصممين الذين يمارسون في سوق تصميم البيئة المبنية في مصر لمبادئ تصميم صحة الانسان العقلية و النفسية. يهدف الباحثون إلى استكشاف "وعي المصممين بنموذج التصميم هذا ومبادئه والى أى مدى يطبقونها في البيئات المبنية في مصر . أنشأ الباحثون مقابلات شخصية مفتوحة ومنظمة بناءً على مبادئ تصميم هذة. استخدم الباحثون تقنيات تحليل الترميز النوعي والوصفي الاستقرائية لمقارنة وربط استجاباتهم لنموذج التصميم هذا لتحقيق الهدف الرئيسي لهذا البحث. تظهر النتائج أن الأشخاص الذين تمت مقابلتهم لا يتبعون معظم مبادئ واعتبارات تصميم البيئات المبنية على خلق عمران صحي للمستخدم. علاوة على ذلك، يجب أن يكون المصممين داخل مصرعلى دراية بالعلوم المثبتة الحالية لنموذج التصميم هذا. ومع ذلك، فإنهم يطبقون بعضها، لكنهم يعتمدون على تجاربهم واحاسيسهم التصميمية في اتخاذ القرارات التصميمة وليس على العلوم المثبتة. يعتقد المصممون الذين تمت مقابلتهم أن منشئي ومصممي البيئة في مصر يجب أن يركزوا على احتياجات الصحة البشرية والرفاهية و ان البيئات المبنية في مصر موجهة نحو الأعمال.

الكلمات الرئيسية: الطبيعة، صحة البشر، مبادئ التصميم الصحية للإنسان، البيئة المبنية في مصر، تصميم الهندسة المعمارية.